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Natural Fibre Composites: Properties and Challenges

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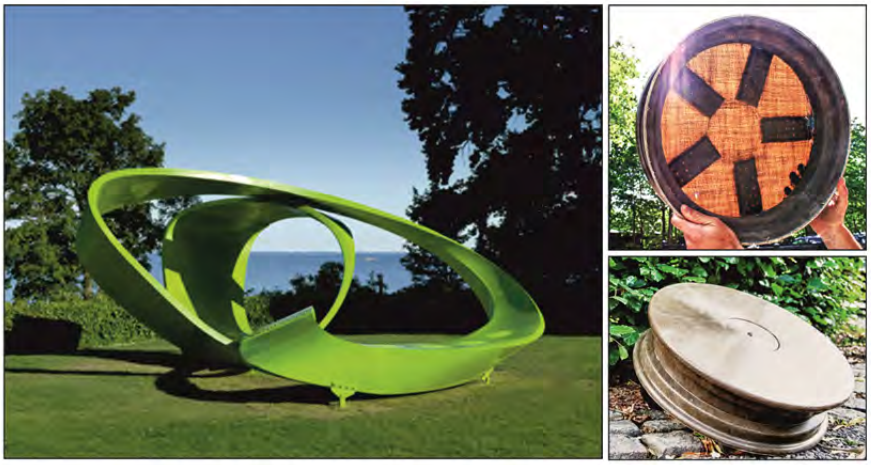
Natural fibres from plants have attracted wide interest as reinforcement in composite materials due to the good technical performance of the fibres, and their potential sustainable nature and low cost. Natural fibre composites have been extensively studied at the Department of Wind Energy, Risø Campus, DTU in the past many years to demonstrate that the composites show high stiffness and low weight, directly comparable to benchmark glass fibre composites, but with moderate strength. A number of demonstrators have been fabricated to reveal the promising potential of natural fibre composites. Examples of existing industrial applications can also be found. A number of still unsolved issues exist for natural fibre composites, which call for further research and development. Recently, the existence of defects in natural fibres has been studied to explain their moderate strength. Methods for the quantification of defects have been developed, and the effect on the mechanical properties of the fibres has been studied.

Demonstrators of natural fibre composites



Sculpture developed by a joint venture of 20 companies coordinated by 3XN architects, Denmark.

Wheel rim developed within the EU 7th Framework Programme project NATEX